MAKEE SUGAR CO.

Plantation That Builds Breakwater To Assist Transportation.

LOCATED at Kealia, on the Island of Kauai, are the large plantation holdings of the Makee Sugar Company, comprising an area of 9465 acres in fee simple.

Capt. James Makee first planted cane upon the present site of the holdings of the Makee Sugar Co. in 1877, but soon sold out to Col. Z. S. Spalding, who really developed the plantation.

At the present writing the company has under cultivation only 3000 acres. For the 1908 crop there was plant cane 1218 acres, long rattoons 913 acres, short rattoons 380 acres, making a total of 2511 acres. The sugar output was 7407 tons. For 1909 about 1125 acres will be carried over with an estimate of 3500 tons. This cutting in half of the sugar output is caused by the withdrawal of the leased lands at Kapaa and Anahola. If these lands were at rice given out to laborers, they could plant cane now and the plantation would help them along until the crop was harvested. As it is now, the lands are lying idle and the plantation's output is cut in half while the laboris only reduced 1-3 and the investment remains the same.

The cane grown is mostly of the Yellow Caledonia variety.

The general character of the soil is swamp, yellow and hed, the last mentioned carrying oxide of iron as a base.

For plowing, two 16-horsepower sets of Fowler's steam tackle are in use, the soil being turned over to a depth of from fourteen to sixteen inches. For ordinary plowing for long rattoons, mule-power is used, breaking the soil up, putting fertilizer in and "hilling" up. In fertilizing, from 600 to 1000 pounds to the acre of a variety of high-grade fertilizers are used, varying, of course, according to the soil and season. The cane matures in from sixteen to eighteen months. Cane planted from June to October tassels the following October.

The average annual rainfall in this section of Kauai is thirty-six inches. The main water supply for irrigation purposes is from mountain streams, being led off from the main source by a system of ditches to large storage reservoirs constructed at stated intervals upon the plantation lands, from whence the supply is distributed to the cane fields. At the present time these reservoirs have a capacity for storing 200,000,000 gallons of water.

Cane is carried to the mill by a system of main and portable railways. The aggregated length of the main line is 20 miles with six miles of field or portable tracks. The rolling stock consists of 300 cane cars, 12 double-truck flat cars for freight, 40 other cars and three locomotives of the Baldwin and German types.

Four artesian wells located at Kealia, with a capacity of 4,000,000 gallons of water in 24 hours, are used to supply water to a height of 250 feet in order to irrigate the lands lying below this level. The artesian well water is pumped by means of electrical power generated by dropping the mountain water 400 feet, which water is afterwards used in watering cane lands between the 250 and 500-foot level.

Some of the fields have been planted consecutively for twenty-eight years. The average number of tons of sugar produced to the acre is as follows: Plant cane, 4.10; long rattoons, 3.61, and short rattoons, 1.78.

The Company employ about 600 laborers, the majority of whom are unskilled hands or field laborers, paid an average of $18 per month of twenty-six days. A few men are engaged under the co-operative system. The laborer, in addition to his regular pay, receives free water, fuel, house and medical attendance.

The old diffusion mill at Kealia, which was the first one in the Islands, was superceded in 1900 by a new maceration process mill, which is a good nine-roller plant, each mill of three rollers being 34x72 inches, made by the Honolulu Iron Works Company, and having a capacity for grinding 800 tons of raw sugar. There is a pressure of 375 tons upon No. 1 mill, 400 tons upon No. 2 mill, and 450 upon No. 3. The various mechanical appliances required in a sugar factory have been installed by the Kilby Manufacturing Company of Cleveland, Ohio, consisting in the main of a complete superheating clarification system with continuous settling tanks, evaporators of the Wellner-Jelinek type, ten 40-inch belt-driven centrifugals of the Weston type, eight crystallizers with a capacity of thirty tons of masse-cuite and two Kilby pans with capacity to strike thirty-five tons of sugar.

Everything about the mill has been arranged so as to enable the engineer and sugar boilers to have a complete view of the machinery at all times. Operated directly overhead in the mill is a large traveling crane capable of moving a 25-ton weight. The bagasse is conveyed by carriers to the fuel room, and fed automatically to the furnaces by aid of "Yankee Feeders." Practically no coal is burned, waste molasses being used as fuel. The mill extraction of sucrose in cane, according to condition of cane, is from 93 to 95 %. The mill is supplied with several filter presses, the mud from which is used for fertilizer.

Adjoining the mill a large warehouse has been erected with a capacity of 100,000 bags of sugar in case of emergency. Both mill and warehouse are constructed of skeleton steel with corrugated iron roof and walls. Independent of the main mill-power there has been installed supplemental power for operating the ice-making plant, which has a capacity of turning out three tons of ice per day. By this auxiliary power, when the mill is shut down, the machine shops can be kept in operation. All electrical power is from the mountains.

A 500-light electric plant has been installed with a Bullock dynamo, operated by a Ball engine.

The Company makes but one grade of sugar, known as the A grade.

Upon the plantation are 140 head of mules and about 600 head of cattle, the latter being raised for beef that is entirely consumed upon the plantation. The Company slaughters from twelve to fifteen head per month. Some 150 calves are branded annually.

The Molokan settlement at Kealia proved very disastrous, they showed no disposition to work and the scheme fell through.

A 600 ft. breakwater has been built at Kealia at an expense of $20,000, and sugar will all be shipped from there in future instead of at Anahola.

The Makee Sugar Company have no agent in Honolulu.

Mr. Fairchild has been identified with the plantation for twenty years, fourteen as its manager.

Manager, George H. Fairchild.
Head Overseer, S. N. Hundley.
Bookkeeper, J. W. Neal.
Store Manager, J. W. Neal.
Steam Plow Engineer, Jno. Rapose.
Carpenter, E. J. Morgan.
Physician, Dr. Hoffman.
Officers of the Company:
President, R. P. Spalding.
Vice-President, Geo. H. Fairchild.
Treasurer, Spalding Co., Los Angeles.
Secretary, J. W. Neal.
Honolulu Agents, None.

HANALEI VALLEY, KAUAI.

Landing Showing Steamer Lying Nearer Wharf Than is Usual. Except in Honolulu all sugar has to be transferred from wharf to steamer in small boats or lighters.

The plantation employs 1100 skilled and unskilled laborers, most of the work being carried on by day labor, with the exception of cane cutting and loading, which is done under the contract system. The laborers in addition to their wages receive house room, fuel, water and medical attendance. The plantation does not maintain a hospital of its own, but contributes to the support of the Waimea hospital, of which the various plantation managers of the district are trustees. The Company also supports the foreign church of Waimea.

A new Japanese school house has been built on plantation land and is free to the children of Japanese laborers.

None of the land being held in fee simple and all available land being planted in cane no effort has been made to secure homesteaders. Also the climate at Kekaha is the hottest on the islands.

The nine-roller mill consists of three 3-roller mills made by the Honolulu Iron Works a few years ago. The rollers are 32x60. The cane is fed through a Krajewski crusher. The hydraulic pressure upon each 3-roller mill is as follows, varying somewhat according to the fibre of the cane, etc.: No. 1 mill, 250 tons; No. 2 mill, 275 tons; and No. 3 mill, 300 tons. Formerly the mill was operated seventeen hours a day during which time from forty to forty-five tons of sugar were turned out. In consequence of manynew and efficient improvements made from time to time the mill can run night and day, and during a continuous run to twenty-two hours make from 75 to 80 tons of sugar.

The principal mill apparatus consists of two quadruple effects, six filter presses, one Honolulu Iron Works, one German vacuum pan, and a pan that was installed by Mr. Lorenz with a total striking power of eighteen tons, twenty-one centrifugals and the necessary pumps and other appliances.

The plantation has had in operation during the last four crops a central condensation system put in by Consulting Engineer Lorenz. This system consists of one central and one vacuum pump, to which two quadruple effects and three vacuum pans are connected. This condenser and pump does the work formerly done by five vacuum pumps. The new vacuum pan contains a number of 1½-inch straight tubes the boiling being done by exhaust steam only.

The condenser, among other favorable qualities, is a fuel saver and has been an immense success in every particular. It apparently is a valuable adjunct to the mill and has materially increased the sugar output.

The mill is driven by a large Hamilton-Corliss engine, steam being generated by the burning of bagasse or cane trash and molasses. Water for condensation purposes is obtained from artesian wells on the place.

The Company owns their own lime kiln the lime being used for clarification and building purposes, etc.

Adjoining the mill building are the machine shops, electric light plant and general offices of the Company. In addition, the Company maintains its own telephone system, using portable instruments. Only one grade of sugar is manufactured, known as the "A" grade, all the low-grade sugars and molasses being worked over.

The sugar product when ready for shipment is conveyed from the mill to the landing at Waimea by rail, whence it is shipped to Honolulu by steamer and loaded there direct into vessels for the Pacific Coast and the East.

H. P. Faye is manager of the plantation and has been actively identified with the sugar industry for the last twenty-eight years and at this plantation 25 years.

Mr. Faye has the following staff to assist him: Head Overseer, G. Hansen and Wm. Danford; Chief Mill Engineer, E. W. Barron; Bookkeeper, A. G. Hime; Assistant Bookkeeper and Timekeeper, F. H. Aaser; Pump Engineer, A. M. Da Vico; Sugar Boiler, F. Kuhlmann and A. Faye; Chemist, Alex. Brodie; Steam Plow Engineers, C. Jacobsen and F. Deichen; Physician, Dr. B. F. Sandow.

Following is the list of officers and directors of the Kekaha Sugar Company:

G. N. Wilcox, President.
H. P. Faye, First Vice-President.
D. P. R. Isenberg, Second Vice-President.
Wm. Pfotenhauer, Treasurer.
F. Klamp, Secretary.
A. Haneberg, Auditor.
A. S. Wilcox, Director.
E. Kruse, Director.
H. Hackfeld & Co., Ltd., Agents, Honolulu

Hawaii is represented in Congress by a Territorial Delegate, elected every two years. His status in Congress is identical with that of the Delegates from the mainland Territories.